

ABSTRACT

A metal pattern of the present invention is a metal pattern (13') formed on a surface of a substrate by etching, and a monomolecular film containing fluorinated alkyl chains ($\text{CF}_3(\text{CF}_2)_n-$, where n represents a natural number) is formed on a surface of a metal film composing the metal pattern (13'), and a masking film (18) is formed by penetration of a molecule having a mercapto group ($-\text{SH}$) or a disulfide ($-\text{SS}-$) group into interstices between molecules composing the monomolecular film. The metal pattern is produced by: forming a monomolecular film containing fluorinated alkyl chains ($\text{CF}_3(\text{CF}_2)_n-$, where n represents a natural number) on a surface of a metal film; forming a masking film by applying a solution in which a molecule having a mercapto group ($-\text{SH}$) or a disulfide ($-\text{SS}-$) group is dissolved over a surface of the monomolecular film so that the molecule having a mercapto group ($-\text{SH}$) or a disulfide ($-\text{SS}-$) group penetrates in interstices between molecules composing the monomolecular film; and etching the metal film by exposing the surface of the metal film to an etching solution so that a portion of the metal film in a region not covered with the masking film is removed.